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(54) **METHOD AND SYSTEM FOR
ESTABLISHING LOCATION-BASED
LEADERBOARD**

2007/0238507 A1 * 10/2007 Sobel et al. 463/17
2011/0010464 A1 * 1/2011 Morrison et al. 709/245
2011/0252079 A1 * 10/2011 Werner et al. 709/202

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455/465

(58) **Field of Classification Search**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,840,861 B2 * 1/2005 Jordan et al. 463/42
6,985,747 B2 * 1/2006 Chithambaram 455/456.5

OTHER PUBLICATIONS

U.S. Appl. No. 13/181,464, filed Jul. 12, 2011.
U.S. Appl. No. 13/190,411, filed Jul. 25, 2011.
International Search Report mailed date Jul. 27, 2012, for Interna-
tional PCT Application No. PCT/US2012/045454.

* cited by examiner

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(57) **ABSTRACT**

Methods for establishing a location-based leaderboard by a computer game system are disclosed. The world may be partitioned into a set of regions and sub-regions by the computer game system using a hierarchical spatial data structure, wherein the regions and sub-regions are arranged according to a hierarchy, each sub-region being encompassed by a higher-level sub-region or region, and two or more highest-level sub-regions being encompassed by a region. A location of a user of the computer game system along with one or more statistics associated with the user may be assigned to a smallest sub-region created by the hierarchical spatial data structure. A rank of the user may then be determined within a region or sub-region encompassing the smallest sub-region to which the user's location was assigned, wherein the rank is determined using the one or more statistics associated with the user. One or more users may then be notified of the rank.

21 Claims, 9 Drawing Sheets

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